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## Roche Sample Needs in Oncology Research

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## **Sample Acquisition Challenges**




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**Criteria for Selecting External Biorepositories**

**Opportunities**

# Sample Needs are Driven by the Pipeline

## Roche Oncology Pipeline...

Phase I		Phase II	Phase III
<b>MDM2 antagonist</b> (RG7112) Solid tumors & hematologic malignancies	<b>PI3 kinase inhibitor</b> (GDC-0941, RG7321) Metastatic breast cancer, metastatic non-small cell lung cancer	<b>Pertuzumab</b> (HER2 dimerization inhibitor MAb, RG1273) <sup>g</sup> Neoadjuvant HER2+ breast cancer, second-line HER2+ metastatic breast cancer	<b>Pertuzumab</b> (HER2 dimerization inhibitor MAb, RG1273) <sup>g</sup> First-line HER2+ metastatic breast cancer
<b>Anti-EGFR huMAb</b> (GA201, RG7160) Head and neck squamous cell carcinoma, non-small cell lung cancer, solid tumors	<b>PI3 kinase/mTOR inhibitor</b> (GDC-0980, RG7422) Solid tumors, non-Hodgkin's lymphoma	<b>T-DM1</b> (HER2-targeted antibody-drug conjugate, HER2 ADC, RG3502) <sup>h</sup> First- & third-line HER2+ metastatic breast cancer	<b>T-DM1</b> (HER2-targeted antibody-drug conjugate, HER2 ADC, RG3502) <sup>h</sup> Second-line HER2+ metastatic breast cancer
<b>MEK inhibitor, CKI27</b> (RG7304) <sup>a</sup> Solid tumors	<b>MEK inhibitor</b> (GDC-0973, RG7420) <sup>d</sup> Solid tumors	<b>GA101</b> (anti-CD20 MAb, RO5072759, RG7159) <sup>i</sup> Chronic lymphocytic leukemia, non-Hodgkin's lymphoma	<b>GA101</b> (anti-CD20 MAb, RO5072759, RG7159) <sup>i</sup> First-line chronic lymphocytic leukemia
<b>MEK inhibitor, CIF</b> (RG7167) <sup>b</sup> Solid tumors	<b>Anti-NRP1 MAb</b> (MNRP1685, RG7347) Solid tumors	<b>BRAF inhibitor</b> (PLX4032, RG7204) <sup>j</sup> Second- & third-line metastatic melanoma	<b>BRAF inhibitor</b> (PLX4032, RG7204) <sup>j</sup> First-line metastatic melanoma
<b>Gamma secretase inhibitor</b> (RG4733) Solid tumors	<b>Anti-EGFL7 MAb</b> (MEGF0444A, RG7414) Solid tumors	<b>Hedgehog pathway inhibitor</b> (GDC-0449, RG3616) <sup>k</sup> Advanced basal cell carcinoma, first-line metastatic colorectal cancer, ovarian cancer in second or third complete remission	<div>  NMEs developed by pRED (Pharma Research and Early Development)            NMEs developed by gRED (Genentech Research and Early Development)            NMEs developed by pMED (Pharma Medicines, late-stage development)         </div>
<b>Anti-PIGF MAb</b> (TB-403, RG7334) <sup>c</sup> Solid tumors	<b>Dulanermin</b> (rhApo2L/TRAIL, RG3639) <sup>e</sup> Colorectal cancer	<b>MetMab</b> (RG3638) Second- & third-line metastatic non-small cell lung cancer	
	<b>Antibody-drug conjugate (ADC)</b> (DCCDT2980S) <sup>f</sup> Hematologic malignancies	<b>Navitoclax</b> (Bcl-2/Bcl-X <sub>L</sub> inhibitor, ABT-263, RG7433) <sup>l</sup> Relapsed chronic lymphocytic leukemia, relapsed lymphoid malignancies, small-cell lung cancer	

# Roche Sample Needs in Oncology Research

## *Challenge for research and early development researchers*



Our therapeutics have become standard of care

Herceptin®

Avastin®

Tarceva®



**A good thing for patients**

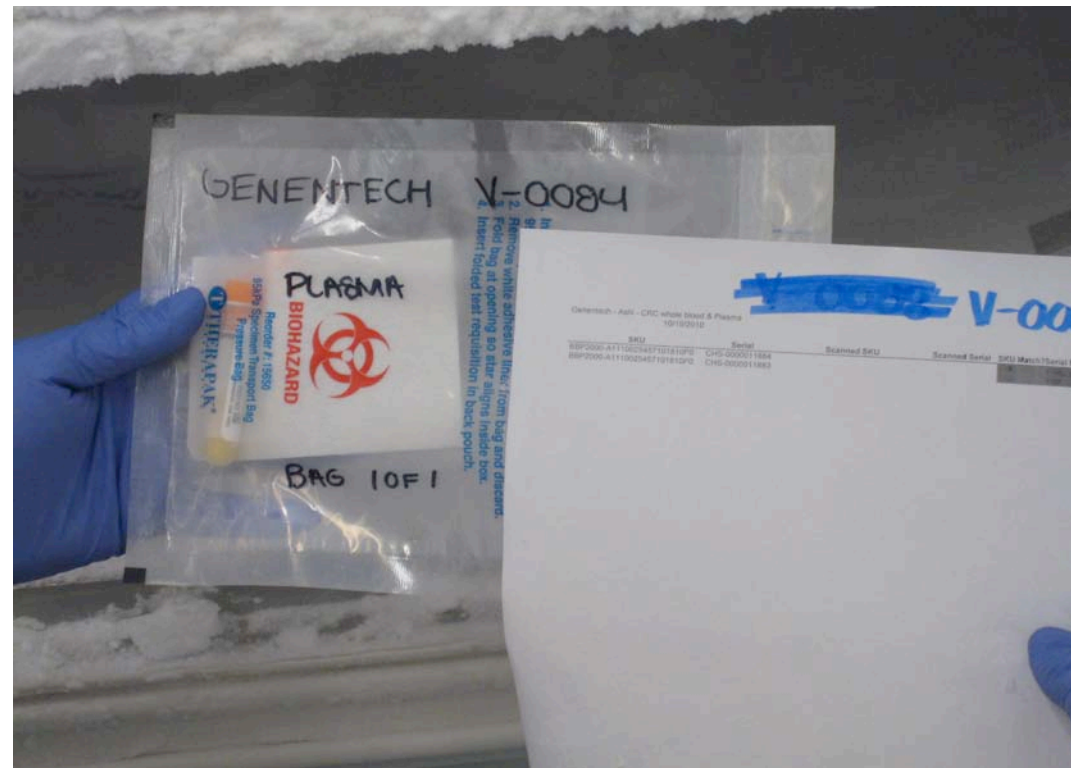


Our researchers' challenge:

*Characterize non-responders and relapsers to identify new pathways; understand how our drugs alter disease progression*

# Example - Colorectal Cancer screen/pre/Avastin tx Biofluid Collection

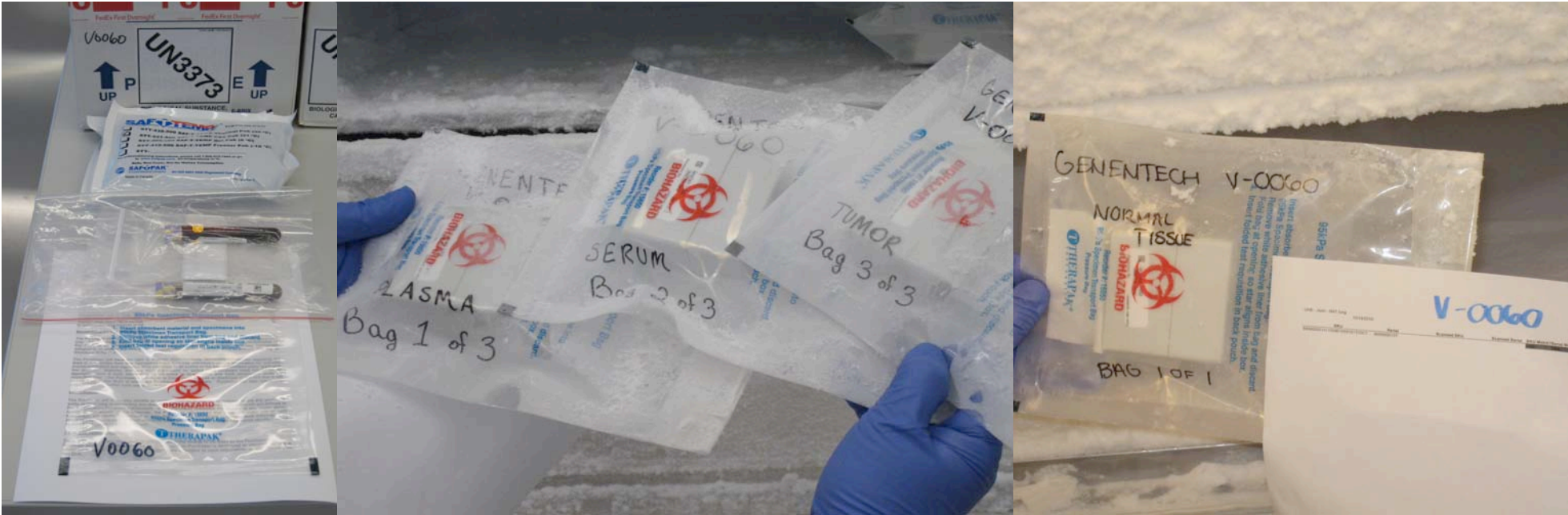
Timepoint 1	Screening	Fresh blood x2, 4ml plasma
Timepoint 2	Pre-AVF	Fresh blood x2, 4ml plasma
Timepoint 3	AVF tx	Fresh blood x2, 4ml plasma





# Example - Lung Cancer Patient Request

Timepoint 1	Surgery	FF tumor, FF NAT, plasma, serum, sputum, fresh blood
Timepoint 2	1-3 months after surgery	Plasma, serum, sputum, fresh blood
Timepoint 3	3-5 months after surgery	Plasma, serum, sputum, fresh blood



# Genentech Research and Early Development (gRED) Sample Procurement

Sample procurement staff supports gRED activities in oncology research

- Clinical trial samples fulfill some, but not all, needs of researchers
- In the past, researchers acquired samples from vendors in an ad-hoc manner
  - Quality sometimes sacrificed due to time constraints
  - Pricing not always negotiated
  - Competition among different parts of the organization for scarce samples
- Now have a centralized service for sample procurement
  - Receives variety of requests depending on indication and phase
  - Maps requests to variety of commercial sample vendors
  - Provides management of vendors

# Sample Procurement Trends

Demand has increased significantly over the past two years

Specific trends:

- Samples from multiple timepoints
  - Timepoints before and during treatment
  - Longitudinal samples
- Prospective collection
  - Driven by patient criteria and project requirements
- Sample sets
  - Tissue plus matched fluid from same patient
- Patient treatment data mandatory



## Sample Acquisition Challenges

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## Criteria for Selecting External Biorepositories

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## Opportunities

# Quality Considerations for Commercial Vendors

- Over 25 vendors currently in gRED's specimen vendor list
  - Only 5 can provide highly detailed annotated/characterized FFPE
  - Only 4 can provide a variety of prospective collection approaches

High Quality (Designated)	<ul style="list-style-type: none"> <li>• Tissue/blood collected specifically for sponsor</li> <li>• Specimens collected considered optimal for biomarker discovery/research</li> <li>• Detailed patient treatment info (banked)</li> <li>• High cost</li> </ul>
Low Quality (Residual)	<ul style="list-style-type: none"> <li>• Remnant tissue on dissection tray that is to be discarded</li> <li>• Residual plasma/serum from chemistry labs</li> <li>• Ideal for use in testing assays/instrumentation</li> <li>• Lower cost</li> </ul>

# Commercial Vendor Management

Active management of commercial vendors

- Selection criteria for specific requests
  - Timing/availability
    - Prospective or banked
    - Rate of patient enrollment
  - Cost
- Monitoring of performance
  - Adherence to guidelines (e.g., shipping notification, manifest format, barcoding)
  - Responsiveness to issues
- Sample quality
  - Feedback on quality provided
- Site visits

# Commercial Vendor Selection Criteria

Criteria	Mandatory / Optional
Direct access to oncology/immunology clinics and surgical centers	Mandatory
Direct access to hospital pathology archive and patient treatment info	Mandatory
Knowledgeable about disease of interest	Mandatory
Ability to quickly initiate/modify procurement activity	Mandatory
High quality dedicated specimens (not residual)	Mandatory
IRB already set in place	Optional (preferred)
Fresh blood arrives within 24 hrs of draw	Mandatory

# Some Observations from Vendor Site Visits

## *Opportunities*



### Clinics and hospitals

Clinicians do not always understand the value these samples bring to clinical research



### Patients

High consent rate

Feedback from patient: “I don’t care, as long as the cancer gets out of my body”

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# Opportunities for a Centralized Biorepository

## *Fulfilling Future Sample Needs*



Need treatment information and longitudinal data

***Leverage electronic medical records to deliver clinical data along with the samples***



Need more donors from more clinic sites

Need matched sample sets

***Improve public awareness of the benefits of sample donation***

# Acknowledgements

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*We Innovate Healthcare*